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Another well, remote from the last mentioned one, had been yielding a good supply of water for more than a year. A blast of ordinary violence was discharged in an excavation for stone, three hundred yards distant from it, whereupon the water quickly and entirely disappeared. The proprietor directed a boring to be made in the bottom of the well six feet in depth and a blast to be set off in it.

The result was as curious as the one which preceded it. The water at once reappeared, and the supply has since been steady and in great abundance.

Dr. Leidy observed that the remarks of Prof. Rogers, had reminded him of the so-called Hillsboro coal or Albertite, of Albert Co., New Brunswick. This substance Dr. L. regards as a variety of Asphaltum and not as coal. The latter consists of the fossil remains of plants. The Albertite is a product resulting from the distillation of bitumenous coals or shales. Coal always presents in microscopic section the remains of vegetable structure; Albertite is perfectly amorphous. Coals are stratified or interstratified with other substances; the Albertite presents many evidences of being an injected material into fissures of the surrounding shales.

The number of the Proceedings for January was laid upon the table.

February 21st.

Mr. Lea, President, in the Chair.

Thirty-five members present.

A paper was presented for publication entitled:

"The Mexican Humming Birds, No. 2, by Rafael Montes de Oca."

Mr. Slack remarked that the two teeth of the *Mosasaurus missouriensis*, presented by him this evening, had been procured for him from the marl pits of Mr. Coward, about two miles west of Freehold, N. J., through the exertions of Mr. Hopper, of Freehold, N. J., a gentleman to whom the Academy is largely indebted for cretaceous fossils. This is the eleventh specimen of the *Mosasaurus missouriensis* identified by Mr. Slack, found within a radius of ten miles from Monmouth Court House.

Dr. Leidy announced that the valuable collection of fossils of Mr. Eli Bowen had been purchased by subscription and presented to the Academy.

February 28th.

Mr. Lea, President, in the Chair.

Forty-four members present.

The Report of the Biological Department for the present month was read.

On report of a committee of the Biological Department, the paper entitled, "Method of painting moist anatomical preparations, by H. D. Schmidt, M. D.," was recommended for publication in the Proceedings of the Department.

And the following were ordered to be printed in the Proceedings:

Illustrations of some Fossils described in the Proceedings of the Academy of Natural Sciences.

BY T. A. CONRAD AND WM. M. GABB.

Pl. 1, fig. 1, a, b, c, Myalina deltoidea *Gabb*, Proc. Acad. 1859, p. 297.

Pl. 1, fig. 2, Posidonia Moorei *Gabb*, Proc. Acad. 1859, p. 297.

Pl. 1, fig. 3, Myacites pensylvanicus *Conrad*, Proc. Acad. 1857, p. 166.

The first two, Myalina deltoidea and Posidonia Moorei are carboniferous; Myacites pensylvanicus is triassic, from Phœnixville, Pennsylvania.

Descriptions of New Species of American Fluviatile Gasteropods.

BY J. G. ANTHONY.

MELANIA ANGUSTISPIRA, Anthony.—Shell thick, elongate, very slender; color reddish-brown, with a narrow pale line at the suture; whorls 9–10, lower ones subconvex, smooth, upper ones flattened and carinate near their bases: sutures slight; aperture narrow-ovate, within pale purple; columella regularly curved: sinus not remarkable.

Hab.—Tennessee.

My Cab.; Cab. Hugh Cuming, London; A. N. S. Philada.; State Collection, Albany, N. Y.; Smithsonian Collection, Washington, D. C.

Obs.—May be compared with *M. exilis*, Hald., than which it is more slender, more attenuate, and of more solid texture; its color is also entirely different, being more like *M. Warderiana*, Lea, but wanting the peculiar bulbous form of that species. The carinations do not extend to the three lower whorls; upon these they are entirely wanting. It is a peculiarly slender and graceful species.

M. DECORATA, Anthony.—Shell short, thick, ovate; whorls about five, but truncate so as to show only two or three remaining; whorls prominently ribbed and intersected by revolving striæ, forming nodules where they cross each other; dark bands also revolve around the whorls, giving them a highly decorative appearance; columella often thickened by a callous deposit; sinus small.

Hab.—Oostanulla River, Georgia.

My Cab.; Cab Hugh Cuming, London; A. N. S. Philada.; State Collection, Albany, N. Y.; Smithsonian Collection, Washington, D. C.

Obs.—I collected some two hundred specimens of this species in Oostanulla River, Ga., in 1853, and then supposed they would prove to be merely the young of *M. cœlatura*, Con. Closer examination and comparison, however, has convinced me that they are not identical. Many of the specimens are decidedly mature, and differ from "cœlatura" by the greater regularity of their folds, which are also interrupted by a revolving raised line near the sutures, and by their dark bands and less elongate form; cannot well be compared with any other.

M. ADUSTA, Anthony.—Shell conical, smooth, shining; color dark brown, with a pale line near the sutures; whorls 7–8, flat; body whorl rather large, subangulated and with somewhat coarse lines of growth; sutures distinct, but not remarkable; apertnre ovate, dark purple within; outer lip curved, columella deeply rounded, a broad sinus at base.

Hab.—Tennessee.

My Cabinet; Cab. H. Cuming, London; Cab. A. N. S. Philada.; State Collection, Albany, N. Y.; Smithsonian Collection, Washington, D. C.

Obs.—A neat, pretty species, of rather plain appearance. Compared with *M. gracilior*, nob., it is broader, shorter, and of darker color; the broad deep cincture on the body-whorl and beautiful red bands in the interior, so conspicuous in *M. gracilior*, are also wanting. From "athleta" it differs by its shorter, more acute form, and by the absence of folds. It is less slender than *M. viridula.*

M. BICINCTA, Anthony.—Shell conical, elevated, spire very acute; whorls 7, upper ones bicarinate, and body whorl encircled by three or four carinæ, the upper two of which are prominent, while the lower two are often striæ merely; color dark olive brown, very shining, and relieved by a faint or yellow narrow band near the suture; sutures distinct; aperture ovate, and brown within; columella deeply indented.

Hab.—Tennessee.

My Cabinet; Cab. Hugh Cuming, London; A. N. S. Philada.; State Collection, Albany, N. Y.; Smithsonian Collection, Washington, D. C.

Obs.—A beautifully distinct and well marked species of that group which *M. bella*, Conrad, may be considered most fitly to represent. May be distinguished from *M. bella* by its broader and more acute form, more distinct carination and absence of the beaded line so characteristic of that species. Lines of growth conspicuous and crowded. Differs from *M. bicostata*, nob., by its less robust form, darker color, and by the form of its spire, which diminishes more rapidly towards the apex.

M. ABSCIDA, Anthony.—Shell ovate, smooth, olivaceous, thick; spire obtuse, composed of five low whorls nearly flat; body whorl large, occupying nearly the entire length of the shell; aperture not broad but long, subrhombic, more than half the length of the shell; columella deeply rounded and indented; outer lip much curved and produced; sinus broad and conspicuous.

Hab.—Alabama. My Cabinet.

Obs.—A ponderous species, whose chief characteristic is its square form and short truncate spire, resembling in that respect *M. planospira*, nob. It differs from that species, however, by its more elongate form, narrow, rhombic aperture, and by having several revolving striæ at base. It is a solid shell of compact texture, and seems to be rare, as only two specimens have come under my notice.

M. BICOSTATA, Anthony.—Shell conical, light horn color, rather thick; spire elevated, acute; whorls 11–12, strongly carinate near the apex, and decidedly so on each succeeding whorl, not excepting even the body-whorl in most cases, though sometimes obsolete there; carinæ often in pairs, near to, and parallel with each other; sutures deeply impressed, often with a decided furrow at that point, caused by the carinæ. Aperture broadly elliptical, or subrhombic; within dirty white or obscurely banded; columella deeply rounded, with a well-marked sinus at base.

Hab.—Tennessee, near Athens.

My Cabinet; Cab. Hugh Cuming, London; Cab. A. N. S. Philada.; State Collection, Albany, N. Y.; Smithsonian Collection, Washington, D. C.

Obs.—Appears to be a very abundant and rather variable species. Several hundred individuals have come under my notice. It cannot well be confounded with any other species, though of a form by no means uncommon. The sharp double carina will at once generally determine it. Occurs abundantly near Athens, in small streams.

M. FUNEBRALIS, Anthony.—Shell conic, smooth, solid, of a dark chesnut color; spire elevated and generally abruptly truncate; whorls from 3 to 5 only remaining, slightly convex; aperture ovate, within bluish; columella white, tinged occasionally with purple; sinus small.

Hab.—Tennessee.

My Cabinet; Cab. Hugh Cuming, London; A. N. S. Philada.; State Coll., Albany, N. Y.; Smithsonian Collection.

Obs.—A very neat, pretty species, with no very decided character to distinguish it from allied species. May be compared with *M. brevispira*, nob., but is far more solid in its texture, of a darker color, and its surface is more polished and shining; much less slender too than *brevispira*, and that species is never so abruptly decollate. It appears to be an abundant species.

M. GLAUCA, Anthony.—Shell conical, folded, of a green color on the lower whorls, often modified by a brown tinge on the upper ones; whorls 10, slightly convex, with prominent longitudinal ribs, obsolete on the body-whorl; sutures well defined, but not deeply marked; aperture ovate, livid within and with occasionally a faint rosy tinge there; columella angulated at the middle; sinus well defined.

Hab.—Tennessee. My Cabinet.

Obs.—A stout species, with prominent, curved ribs on all the upper whorls, those on the body-whorl being less clearly defined or else absolutely wanting. Color a beautiful apple-green, relieved by a broad yellow band near the suture; and this color often passes into a yellowish brown on the upper whorls. Near the apex the folds are often traversed by four or five prominent striæ, which pass over without being interrupted by the longitudinal ribs. May be compared with *M. viridula*, nob., as to color, but is less slender, and the ribs at once distinguish it.

M. INFRAFASCIATA, Anthony.—Shell conical, smooth, solid, of a pale brown color, form moderately slender and elevated; whorls 8–9, decollate, slightly concave; sutures distinct; lines of growth curved and very distinct; body-whorl decidedly concave, with a well-marked ridge revolving near the summit of the aperture, so as to make a tolerably sharp angle near the middle of the body-whorl; two or three coarse striæ revolve parallel with it; below this is a dark brown band, continued around the base of the shell; aperture rhombic-ovate, livid and banded within; columella strongly incurved, with a callous deposit its whole length and well-defined sinus at base.

Hab.—Tennessee.

My Cab.; Cab. H. Cuming; A. N. S. Philada.; State Coll., Albany, N. Y.; Smithsonian Collection.

Obs.—Compared with *M. gradata*, nob., it is more elongate, more solid, and has not the carina and regularly graded whorls so characteristic of that species. Less conical than *M. canaliculata* Say, and less broad. Like *M. annulifera*, Con., in form, but has not the revolving costæ of that species.

M. PAUCICOSTA, Anthony.—Shell conical, nearly smooth, of a dark greenish horn color; spire obtusely elevated; whorls nearly flat, with a few distinct longitudinal ribs on the upper ones; body-whorl entirely smooth; sutures well marked; aperture ovate, within livid or purple; columella rounded; sinus small.

Hab.—Tennessee.

My Cab.; Cab. H. Cuming, London; A. N. S. Philada.; State Coll., Albany, N. Y.; Smithsonian Collection.

Obs.—Belongs to a group of which *nitens* may be considered the type. From that species it differs, however, by its more robust form and stronger ribs. There is also a marked peculiarity in this species not often observed in the genus; the spire being acute at the apex, increases regularly for the first four or five turns, and then suddenly expanding, becomes as it were distorted in appearance. The ribs are distant from each other and very strongly expressed, differing in this respect from *M. athleta*, which it otherwise resembles. It is a beautiful and appears to be an abundant species.

M. OCCULTA, Anthony.—Shell conic, smooth, rather thin; color lemon-yellow, inclining to brown, with a darker brown band on each whorl, increasing to two on the body-whorl; whorls 7–8, rather convex; suture deeply impressed; aperture ovate, within dusky white, with the outer bands seen faintly through its substance; columella beautifully rounded; outer lip produced, a small sinus at base.

Hab.—Wisconsin.

My Cab.; Cab. H. Cuming, London; A. N. S. Philada.; State Coll., Albany, N. Y.; Smithsonian Collection.

Obs.—A very beautiful and lively species. Bears some resemblance to *M. pulchella*, nob., but is less elongate, more delicately colored, and of a less solid texture; the bands are often obsolete, and never so distinctly expressed as in *pulchella*; its spire is also more acute and the whorls more rounded. Compared with *M. brevispira*, nob., which in form it resembles, it is more attenuate, has a greater number of whorls, and its bands also distinguish it. Its delicate yellow color also is not a common character in the genus, and forms a prominent mark for determination.

M. OPACA, Anthony.—Shell ovate, thick, smooth, of a dark brown color; spire short, composed of about six convex whorls; body-whorl large, subangulated in the centre; sutures indicated by a narrow lighter line, and very distinct; aperture ovate, livid within; columella indented and tinged with purple; outer lip a little curved; sinus not remarkable.

Hab.—Alabama. My Cabinet.

Obs.—A dusky inconspicuous shell of no great beauty. Only two specimens have ever come under my notice, but I am persuaded, nevertheless, that they are distinct—cannot well be compared with any other species. More smooth than *M. athleta*, nob., and devoid of ribs, which that species has. Its dark, dirty, brown color down to about the middle of the body-whorl and pale olive-green underneath, together with its purple columella, may sufficiently distinguish it.

M. PULCHERRIMA, Anthony.—Shell conical, carinate, elevated, acute; whorls 6–8, flat, upper ones obscurely ribbed longitudinally; body whorl sharply angulated, with a dark brown band directly upon the carina, and 2 or 3 below it, one of which is very near the carina. Upper whorls with 2 bands each, widely separated; sutures distinct, rendered more so by the neighboring carina; aperture ovate, within 3 or 4 banded; columella rounded and indented, sinus small.

Hab.—North Carolina.

My Cabinet, Cabinet H. Cuming, London; Acad. Nat. Sci. Phila.; State Collection Albany, New York; Smithsonian Collection.

Obs.—A small but remarkably beautiful species; its bright yellow ground and conspicuous dark lines give, by contrast, a lively and pleasant character to the shell. Compared with *M. nigrocincta*, nob., it is a larger species, its colors are more decided, and its carina are also a prominent mark of difference. *M. clara* nob. is a larger and more globose species, its bands are broader and it has no carina. It seems to be an abundant species, varying occasionally in some of its characters, but always easily recognized. More than 100 specimens are before me.

M. TENEBROCINCTA, Anthony.—Shell conic-ovate, smooth, rather thick; spire rather obtusely elevated; whorls 6–7, nearly flat, but with an obtuse carina below the middle of each, and one more decided between that and the suture; suture well marked and with a pale band near it;—lines of growth decided; aperture linear-ovate, within dusky and having 2 dark bands there,—sinus very decided.

Hab.—Tennessee.

My Cabinet, Cabinet H. Cuming, London; Acad. Nat. Sci. Phila.; State Collection, Albany, New York; Smithsonian Collection.

Obs.—Compared with *M. valida* nob. it is smaller, less robust, more slender, and may also be distinguished from that plain species by its more lively exterior—the dark brown band or bands, contrast finely with the general color of the shell, and with a light band near the sutures.

M. VALIDA, Anthony.—Shell ovate-conic, smooth, olivaceous, thick; spire obtusely elevated, decollate; whorls flat, only about 6 remaining; sutures distinct; lines of growth very strong, amounting to varices on the body whorl; aperture ovate, bluish white within; columella strongly curved, or indented about the middle, white; sinus well developed at base; body whorl obscurely, concentrically striate, the striæ forming faint nodules where they intersect the varices.

Hab.—Tennessee.

My Cabinet; Cab. of H. Cuming, London; A. N. S. Phila.; State Coll. Alb. N. Y.; Smithsonian Collection.

Obs.—This species may be compared with *M. tenebrocincta* herein described—from that species it may be distinguished by its more robust form, uniform dark olivaceous color and the absence of the dark bands so conspicuous in that species. It has a very solid, compact form, and this with its regular, uniform size up to the point of decollation, may serve to distinguish it from all others.

M. GRAVIDA, Anthony.—Shell ovate, smooth, thick; spire obtusely elevated; whorls 7–8, nearly flat; sutures well defined; lines of growth fine, but very distinct; body whorl large, subangulated; aperture oval, livid inside; columella deeply indented, covered with a white callus; outer lip curved forward, and with the columella forming a small sinus at base.

Hab.—Alabama. My Cabinet.

Obs.—A stout, heavy shell, in form and color resembling in some degree *M. solida*, Lea, but is more ovate than that species. Color light brown, smooth but not very shining—lines of growth very distinct and curved. A few indistinct striæ occur at the base of the shell—the lower part of the columella is often tinged with a golden hue.

M. GROSSA, Anthony.—Shell ovate, folded, thick; spire obtusely elevated, composed of about 8 convex whorls rapidly attenuating to an acute apex; whorls folded, except the last two; body whorl tumid, smooth; color of epidermis light greenish olive; aperture elliptical, whitish inside; columella rounded; outer lip much curved, with a well marked sinus at base.

Hab.—Tennessee. My Cabinet.

Obs.—A short thick species whose chief characteristics are its bulbous form, and short but prominent ribs on the upper whorls. All the whorls but the last are remarkably narrow and crowded—lines of growth prominent—4 or 5 striæ revolve around the base or the shell. Resembles *M. glandula*, nob., in form, but its different color and texture, with its prominent ribs, will at once distinguish it.

M. PONDEROSA, Anthony.—Shell conic, broad, smooth, olivaceous, thick; spire considerably but not acutely elevated; whorls 7–8, subconvex; lines of growth curved and strong; sutures distinct; aperture rhombic, rather small, whitish within; columella indented, outer lips much curved forwards forming a broad well marked sinus at base.

Hab.—Tennessee. My Cabinet.

Obs.—One of the most ponderous of the genus. In form it resembles *M. canaliculata*, Say, but has not the channel of that species, and differs also in the aperture. The body whorl is strongly keeled about the middle and has another and less clearly defined carina about midway between the first and the suture above. The lines of growth are very strong and occasionally varicose. A strong deposit of white callus is found upon the columella, which is much thickened near the base.

M. TÆNIOLATA, Anthony.—Shell conic-ovate, striate, thick; spire elevated but not acute, composed of 6–7, nearly flat whorls; sutures not distinct; aperture sub-rhombic, small, banded within; columella indented, callous at its lower portion, and with a small but distinct sinus at base.

Hab.—Alabama. My Cabinet.

Obs.—A fine, showy, robust species, of a dark yellow color, enlivened by several dark brown bands, generally 2 on each whorl; body whorl angulated: with one band directly upon the sharp angle, another in close proximity, and a third quite distant and near the base of the shell. Band obsolete on the first two or three whorls. Surface coarsely striate and obscurely ribbed.

MELANIA GLANS, Anthony, being preoccupied, I propose to change the name to M. GLANDULA.

M. ASSIMILIS, Anthony.—Shell small, short, conic, not thick; spire acute, composed of about 7 flat whorls; sutures very distinct, of a light horn color; aperture small, ovate, dusky within; columella indented; body whorl angulated; sinus not broad, but well formed.

Hab.—Tennessee. My cabinet.

Obs.—A small delicate species; compared with *M. pallidula*, nob., it is more slender and elevated, has a greater number of whorls, and is devoid of bands. From *M. angulata*, nob., it differs in being more slender, more carinate, and having a more elevated spire.

M. CUBICOIDES, Anthony.—Shell ovate, smooth, thick; whorls 6—7, flat, the upper ones rapidly enlarging to the body whorl, which is broad, and acutely angulated; sutures distinct, rendered more so by a sharp carination on the lower part of each whorl; aperture broadly ovate, within whitish; columella deeply indented; sinus small.

Hab.—Wabash River, Indiana. My Cabinet.

Obs.—One of the short, thick species, in form not unlike *M. cuspidata*, nob., but differing by its sharp carinated body whorl and imbricated spire; the body whorl is also strongly striate and obscurely ribbed; these longitudinal ribs are very faint, but sufficiently distinct at the sharp carina near the summit of the aperture to modify its outline into a waving subnodulous line.

M. HYBRIDA Anthony.—Shell conical, elevated, nearly smooth, horn colored; whorls 8—9, upper ones carinated deeply, lower ones entirely smooth; color reddish brown, or dark horn color; sutures distinctly impressed; aperture small, ovate, tinged with rose color or violet within; columella rounded but not deeply indented; sinus small.

Hab.—Tennessee.

My Cabinet; Cab. H. Cuming, A. N. S. Philada.; State Coll., Albany, N. Y.; Smithsonian Collection, Washington, D. C.

Obs.—A neat, pretty species, with no very strong distinctive characters; from *intertexta*, nobis, which it somewhat resembles; it may be distinguished by its less acute form, less numerous whorls, and by its want of reticulated surface so peculiar to that species. Bears some resemblance, to *M. bella*, Con., but differs in form of outline and aperture, and has no beaded line; is also more elevated than *M. bella.*

M. VERSIPELLIS, Anthony.—Shell small, ovate, folded, rather thin; spire not elevated, but acute, composed of about 7 flat whorls; whorls of the spire all more or less folded, penult and body whorl smooth: body whorl bulbous, subangulated, concentrically striate; color olivaceous, ornamented with dark brown bands, of which four are on the body whorl and one only on the spiral ones, located upon or near the shoulder of each volution: aperture elliptical, about half the length of the shell, banded within.

Hab.—Tennessee. My Cabinet; Cab. H. Cuming.

Obs.—A small and somewhat variable species as to coloration, though very constant in other characters; it is sometimes very dark both as to bands and general color, and often very light with bands scarcely distinguishable and many varieties between; it seems not to be a very common species.

M. COGNATA, Anthony.—Shell ovate, short, smooth, moderately thick; spire obtusely elevated, consisting of 5—6 convex whorls; color brownish-yellow with three dark brown bands about the middle of the body whorl, and one very obscure one at the suture; suture deeply impressed; aperture broad-ovate, not large, exhibiting the bands inside; columella deeply rounded, indented and callous; sinus none.

Hab.—Tennessee. My Cab.; Cab. H. Cuming; A. N. S., Philada.

Obs.—A short, pretty species, with no very marked characters, though easily recognised as distinct on examination; in form and coloring somewhat like *M. compacta*, nobis, but far less solid and heavy than that species; the spire is more elevated and acute and the surface smoother. It most nearly resembles, perhaps, *M. coronilla*, nobis, but is less elevated and has not the peculiar crowning ribs of that species, which is sufficient at once to distinguish it. It is also more robust.

M. CORNEOLA, Anthony.—Shell small, conical, rather thin; spire short and not very acute, composed of five or six subconvex whorls; whorls all more or less folded and with revolving raised striæ which give them a subnodulous appearance; the body whorl has four or five faint bands which appear also within the aperture; aperture small, ovate, sinus small.

Hab.—Alabama. My Cabinet.

Obs.—This is a small and not very remarkable species, nor can it well be compared with any other. One is at first view forcibly reminded of *Columbella avara*, Say, which it resembles both in size and general appearance. The bands alluded to are often interrupted and never very fully expressed; body whorl subangulated below the middle; does not seem to be a very abundant species. Only six individuals are before me.

M. GRATA, Anthony.—Shell conic, elevated, smooth, thick; whorls 9, flat, terminating in an acute apex, the first three or four whorls being carinated; color light greenish-yellow, ornamented by a single dark band on the spiral whorls, and four similar bands on the body whorl, giving the shell a truly lively and beautiful appearance; sutures very distinct; aperture ovate, banded within; columella deeply indented and curved at base, where there is a small but rather broad sinus.

Hab.—Alabama. My Cabinet.

Obs.—The colors in this species are finely contrasted, and the general appearance is very lively and pleasing: the bands on the body whorl are not uniformly distributed, the upper and lower ones being widely separated, while the central ones are very close together and less distinct. Altogether it is one of our most beautiful species.

M. GERMANA, Anthony.—Shell carinate on the body whorl; form rhombic; substance rather thin; varying in color from ash grey to dark brown; whorls six, upper ones smooth; suture very distinct; aperture rhombic, within brownish, with a white area near the outer edge; columella rounded or angularly indented, slightly callous; sinus small.

Hab.—Cahawba River, Alabama. My Cabinet.

Obs.—This is another of the short, rhombic species, which are represented most fitly by *M. rhombica*, nob., and includes *M. angulata*, nob., *M. cubicoides*, nob., *M. cristata*, nob., and many others. From *M. rhombica*, it differs in being shorter and less slender, and by wanting the regular concentric striæ so conspicuous on the upper half of that species; it is also less slender than *M. angulata*, nob., and more solid. From all other species it may readily be distinguished.

M. GRISEA, Anthony.—Shell ovate, smooth, thick, of a dull grey color; whorls 7, convex; sutures very distinct; body whorl obscurely ribbed, and having two or three inconspicuous bands revolving around it; aperture large, ovate, banded within; columella deeply indented, with a white callus, unusually thickened at the summit of aperture; sinus broad but not distinct.

Hab.—Tennessee River, North Alabama. My Cabinet.

Obs.—A single specimen only of this species has come under my notice, but I cannot consider it referable to any described species. The bands are very obscure, scarcely perceptible, and those within the aperture are arrested before reaching the edge of the lip. The ribs which are inconspicuous on the spire become more decided on the body whorl, and sometimes appear as varices there; the spire is very obtusely elevated.

M. IOSTOMA, Anthony.—Shell ovate-conic, smooth; spire obtusely elevated; whorls about six, subconvex; body whorl exhibiting uncommonly strong lines of growth, curved and varicose; color greenish olive, shining; sutures distinct; body whorl strongly but not sharply angulated on the middle; aperture broad-ovate, within light purple, which becomes very deep on the columella, which is regularly rounded: outer lip somewhat produced, and having a well developed sinus at base.

Hab.—Tennessee.

My Cabinet; Cab. Hugh Cuming, London; A. N. S., Philada.; Smithsonian Collection.

Obs.—This species approaches nearest in form and color to *M. glans*, nob., now changed to *glandula*, from which it differs in being less globular, of a lighter color generally, and by the angulated body whorl. Compared with *M. pinguis*, Lea, it is less obese, more elongate, and has not the rapidly attenuating spire of that species. From all others it is readily distinguished.

M. INTERTEXTA, Anthony.—Shell conical, acute, and highly elevated; whorls about ten, each strongly ribbed longitudinally and furnished also with revolving striæ, which becoming more elevated near the suture, arrest the ribs at that point; sutures decidedly impressed; aperture pyriform, not large, whitish within; columella slightly rounded, not indented; sinus distinct, but small.

Hab.—Tennessee.

My Cab.; Cab. H. Cuming; A. N. S., Philada.; State Coll., Alb., N. Y.; Smithsonian Collection.

Obs.—A very abundant species. About two hundred specimens are now before me, and present characters remarkably uniform. May be compared with *M. bella*, Conrad, but differs by its more elongate and sharply elevated form; its ribs are more decided, and it has not the bead-like prominences, so common in *M. bella*, and kindred species. From *M. arachnoidea*, nob., it may be distinguished by its less elongate but more acute form, difference of aperture and less number of whorls; the striæ revolve around the whorls and over the folds without being arrested by them, giving the surface a woven appearance: hence its name.

M. RIGIDA, Anthony.—Shell conic, elevate, carinate, rather thin; whorls 8—9, carinate and banded; sutures distinctly marked; aperture small, elliptical, whitish within; columella indented; sinus small but very distinct.

Hab.—Tennessee.

My Cabinet; Cab. H. Cuming; A. N. S., Philada.; State Coll., Alb., N. Y.; Smithsonian Collection, Washington, D. C.

Obs.—This is one of those sharply keeled *Melaniæ* of which *M. bella*, Con., *M. carino-costata* and *M. oblita*, Lea, may be considered good examples. The whorls of the spire have each two carinæ, with generally a dark band between them, though this is sometimes wanting; the body whorl has four or five of these carinæ and generally two bands, one of which revolves within the aperture. To the touch this species has a peculiarly rough feel.

M. GRACILLIMA, Anthony.—Shell conic, thin, brownish; spire very slender, elevated, composed of eight convex whorls, the upper ones folded and striate, the lower ones smooth, the striæ being replaced by indistinct, slender, brown lines; sutures very deeply impressed, a sharp carina on the lower portion of each whorl, rendering them quite distinct; aperture small, ovate, banded inside; columella indented; sinus small.

Hab.—South Carolina.

My Cabinet.

Obs.—A peculiarly slender, graceful species, in form somewhat like *M. strigosa*, Lea, but more folded and more slender. The striæ on the upper whorls are very distinct where they intersect the folds, and give the shell a tuberculous appearance; the folds are arrested by the carina, which is elevated. The brown lines on the body whorl are often slightly elevated, but nevertheless, indistinct, and are about four in number. A faint line or band of a yellow color revolves around the upper portion of the two lower whorls.

GYROTOMA.

As some confusion exists regarding the name of this genus, the following notes are given:—

The genus Melatoma was established by Swainson, and first given to the world in 1840, in his "Treatise on Shells and Shell Fishes," published in London, founded, as he says, (p. 202,) "upon a remarkable Ohio shell sent him many years before by his old friend Prof. Rafinesque." "It has," he remarks, "the general form of a Pleurotoma and of a Melafusus, with a well-defined sinus or cleft near the top of the outer lip, while the inner, though thin, is somewhat thickened above." The other characters named by him are such as are generally considered rather specific than generic, and the pleurotoma-like cut in the outer lip as applied to a fluviatile univalve is altogether sufficient to indicate the new genus. The specimen alluded to by Swainson, and from which his generic description was drawn, was an imperfect one, and the species has not since been identified by American naturalists. This is less to be wondered at when we consider how very local the genus has always been, and how few specimens have found their way into our collections. The waters of Alabama have as yet monopolized this interesting genus, and it is probable that even there it is confined almost, if not quite, exclusively to the Coosa and its tributaries.

On p. 342 Swainson gives the following generic description, adding a figure:

"Fusiform, longitudinally ribbed; a deep sinus at the top of the outer lip; base contracted, channel wide."

Mr. Swainson's figure is quite unsatisfactory. His genus Melatoma is referred doubtfully to Clionella by H. and A. Adams, and has not prevailed for this genus in America or Europe. I have therefore decided not to make use of it in this case.

Subsequently this genus has been noticed by various authors, and other names have been applied to it. In 1841 or 1842, Dr. J. W. Mighels sent me specimens of one species under the name of *Apella scissura;* but his generic name was never published, and his species, if not identical with any which Mr. Lea afterwards described, seems to have been overlooked and forgotten.

On the 14th of December, 1842, Mr. Lea read a paper before the American Philosophical Society, in which he describes *Melania excisa* and *Anculosa incisa.* In his remarks upon these species he alludes to the pleurotomose cut in the superior part of the upper lip, and at the same time suggests the possibility of its being necessary, in consequence of that character, to construct a new genus, which he proposed to call "Schizostoma." Mr. Lea finding his name "Schizostoma" preoccupied in Palæontology, changed it to "Schizochilus." (March 5, 1852, Obs. v. p. 51.) In a paper read May 2d, 1845, Mr. Lea, in a foot-note to page 93, first indicates the generic characters of Schizostoma as follows:—"Testa vel conica vel fusiformis; labrum superne fissura; apertura ovata; columella lævis, incurva;" and describes six additional species.

In the above concise definition of the genus it will at once be noted that the fissure at the upper part of the outer lip is after all the *essential* character; and Mr. Lea himself seems to be aware of this, since of the six species *then* described he states the aperture to be elliptical in five cases and rhomboidal in the other, although his generic character is "aperture ovate;" indeed in the species described by him but a single one has the aperture ovate, and that *one* is described as an *Anculosa.*

It may be doubted whether Mr. Lea's first name will not eventually prevail, since, before he published Schizostoma, Bronn's genus of the same name (Lethea Geogn. i. 95, 1835–1837), had been called a synonym of Bifrontia (Omalaxis) of Deshayes. (*Vide* Desh. in Lam. ix. p. 104.) Indeed, H. and A. Adams (Gen. Rec. Moll. i. 305) do not appear correct in giving preference to Gyrotoma over Schizostoma, *Lea*, on account of Schizostoma, *Bronn*, since (on p. 244) the latter name is placed in the synonymy of Omalaxis.

Another generic name Schizostoma is quoted in Hermannsen's Index. I have not obtained access to the work containing this description, but its date is said to be anterior to Mr. Lea's description.

Mr. Lea's second name, Schizochilus, had previously been used in Coleoptera but withdrawn before Mr. Lea's description was published.

Mr. Shuttleworth, in July, 1845, (Mittheilungen der Naturforschenden Gesellschaft in Bern, p. 88,) gives another description of the genus under the name of Gyrotoma, founded on two species from the Coosa River, descriptions of which are also given.

The generic name of Mr. Shuttleworth has been adopted in H. and A. Adams' Genera of Recent Mollusca (i. p. 305, Feb., 1854.)

Dr. Gray also (Guide to Mollusca, i. p. 103, 1857) adopts Shuttleworth's name.

Such being the confused state of the synonymy of the genus, we have decided to adopt, at least temporarily, the earliest name concerning which no doubt exists.

Only about ten species of this genus have as yet been published, eight of which are by Mr. Lea in 1842 and 1845, since which time few specimens have been collected, and but two new species added. I now propose to add descriptions of nine new species to the number already known, in one of which, "*G. salebrosa*," we note a character not hitherto observed, except in what was perhaps the original type of the genus, viz., a nodulous coronation upon or near the suture, which nodules by lateral compression assume the form of folds or plaits, thus approximating the longitudinal ribs of *Gyrotoma costata*, Swainson. *Gyrotoma bulbosa*, nob., herein described, also exhibits this character, though far less decidedly; and as specimens become more common, we may hope to re-discover the original type so long unknown.

GYROTOMA RECTA, Anthony.—Shell smooth, cylindrical, yellowish, thick: spire short, originally furnished with about 5 low whorls, of which 3 are nearly lost by truncation; fissure moderately broad, not quite direct and not remarkably deep; sutures lightly impressed; aperture narrow ovate, occupying about 3-5ths of the length of the shell; within dusky and obscurely banded; columella callous, thickened abruptly at the fissure.

Length of shell 11-16 in. Length of aperture 7-16. Breadth of shell ⅜ in. Breadth of aperture 3-16.

Hab.—Coosa River, Alabama. My Cabinet.

Obs.—This is the most cylindrical species I have ever seen in this genus. In its general form and coloring it most nearly resembles *G. demissa*, nob., but is longer, more elevated, smoother, and is ornamented with bands, which on that species are entirely wanting; these bands on the body whorl are three in number, of which the middle one is the narrowest and least distinct; they are widely distant from each other; the cord-like cincture is very prominent in this species and the fissure is farther removed from the suture than is usual. It is altogether a beautiful and graceful species.

GYROTOMA DEMISSA, Anthony.—Shell short, robust, thick, truncate, of a dark horn color; spire flat by truncation, exhibiting traces of about four whorls; body whorl cylindrical; fissure broad, waved, and rather deep; aperture elliptical, within whitish; columella thickened along its whole extent, but most so at the fissure.

Length of shell 10-16 in. Length of aperture 7-16. Breadth of shell 7-16. Breadth of aperture 4-16. My Cabinet.

Obs.—A fine cylindrical species, whose chief characteristics are its very smooth, polished surface, plain russet color, and flat, truncate spire; the lines of growth are unusually strong in this species, and the darker lines indicating the terminus of previous mouths are very distinct and numerous, evidencing frequent and many pauses in its growth; the columella is much bent near its base, and a narrow but distinct sinus is formed at about the middle space between the outer lip and columella. A single specimen only is before me, but seems so very distinct from all others that I have no hesitation in considering it new.

Gyrotoma quadrata, Anthony.—Shell short, smooth, fusiform, rather thick, olivaceous; spire short, composed of about 4 very low whorls, the upper two being partially obliterated by erosion; fissure rather broad, waved, but not remarkably deep; sutures distinct; whorls distinctly but not squarely shouldered; aperture elliptical, occupying more than half the length of the shell; within 3 banded; columella with a light callous deposit.

Length of shell 9-16 in. Length of aperture 6-16 in. Breadth of shell 7-16 in. Breadth of aperture 3-16 in.

Hab.—Coosa River, Alabama. My Cabinet; Cab. H. Cuming, London.

Obs.—The most remarkable characteristic at first view of this species is its short, square form; its color is dark, and the bands which are very broad are not very distinct; hence its general aspect is not so pleasing to the eye as many others; the fissure is broadly separated from the body of the shell, outer lip very sharp and sinuous, forming, with the columella, a small not very distinct sinus at base. In form it approaches most nearly perhaps to *G. salebrosa*, nob., but is more delicate in texture, thinner, and has no armature as in that species.

Gyrotoma bulbosa, Anthony.—Shell striate, ovate, moderately thick, dark olive; spire obtusely elevated, subtruncate, 4 whorls only remaining; whorls of the spire subconvex; sutures very distinct, rendered more so by the shouldering of the whorls; body whorl inflated, subangulated a little below the suture, from which angle it shelves towards it, and having 2 or 3 dark, broad bands revolving round it; lines of growth curved and very distinct, almost like crowded ribs; fissure perfectly strait, very narrow and not deep; aperture rather long, of a dusky color within and ornamented by 3 broad and distinct bands there; columella smooth, except at the lower part, where it is slightly thickened.

Length of shell 9-16 in. Length of aperture 5-16 in. Breadth of shell $\frac{3}{8}$ in. Breadth of aperture 3-16 in.

Hab.—Coosa River, Alabama. My Cabinet.

Obs.—A short ovate species resembling in some respects *G. ovalis*, nob., herein described; it is less elevated than that species, more ventricose, and its surface is rougher; indeed, there seems to be indications of obscure folds on the body whorl of this species near the suture, which in very old specimens may be more fully expressed, and thus bring it into close affinity with *M. salebrosa*, nob. These folds, which were noted by Swainson as a generic character in his original type, and which are wanting in all the species since published, and now re-discovered, are exceedingly interesting in that connexion.

Gyrotoma ovalis, Anthony.—Shell smooth, oval, olivaceous, moderately thick; spire obtusely elevated, composed of about 5—6 convex whorls, of which 2 are generally lost by truncation; sutures deeply impressed; aperture broadly elliptical, banded within; fissure direct, exceedingly narrow and very deep, extending nearly one half around the shell; columella slightly curved by a callus.

Length of shell 10-16 in. Length of aperture 7-16 in. Breadth of shell 7-16 in. Breadth of aperture 4-16 in.

Hab.—Coosa River, Alabama. My Cabinet.

Obs.—A fine symmetrical species remarkable for its regularly oval form and unusually deep, linear fissure ; the whorls are somewhat shouldered, though not so much so as in many of the species ; the spiral whorls are furnished with two broad bands, one near the top of each and the other widely separate and near the succeeding whorl, being often half concealed by it ; there are 3 bands on the body whorl equidistant from each other ; compared with *G. bulbosa*, nob., which it most nearly resembles, it is longer, more linear, and has not the rapidly attenuating spire of that species nor its roughly striate surface.

Gyrotoma ampla, Anthony.—Shell smooth, ovate, rather thick, olivaceous ; spire not elevated, but acute ; whorls 6—7, subconvex ; sutures well defined ; fissure broad, rather deep and waved ; aperture moderate, elliptical, flesh colored and banded within ; columella smooth, or slightly thickened only at the fissure ; body whorl striate, and banded ; whorls of the spire not banded, but having a thickened cord-like line near the suture.

Length 11-14 in. Breadth 7-16 in. Length of aperture 7-17 in. Breadth of aperture 4-16 in.

Hab.—Coosa River, Alabama. My Cabinet.

Obs.—A fine symmetrical species of this interesting genus which hitherto has not been very productive in species. Compared with *Schizostoma funiculatum*, Lea, which it most nearly resembles, it is smoother, thinner, more acute, and has not the double cord-like lines of that species. Most if not all the species of Gyrotoma have the fissure gradually filled up behind as it is pushed forward in the process of growth, by a cord-like line more or less prominent, often so much so as to produce quite a shoulder at the suture, and this species is so marked, but it has no cord-like line in the middle of the body whorl as described in *funiculatum.*

Gyrotoma salebrosa, Anthony.—Shell fusiform, robust, thick, nodulous, of a dusky olive color ; spire truncated, leaving scarcely more than the body whorl, but indicating by traces on the truncation the loss of three or four others ; fissure moderately open, waved, not deep ; body whorl, roughly nodulous at the upper part and ornamented by three dark bands below ; aperture ample, ovate, dusky within and bounded with three broad bands ; columella deeply rounded, covered with a thick deposit of callus, white at its lower portion, but tinged with dark brown at the fissures.

Length of shell ¾ in. Breadth of shell ½. Length of aperture 9½-16. Breadth of aperture 5-16.

Hab.—Coosa River, Alabama. My Cabinet.

Obs.—This species presents the unusual characteristic of a nodulous surface, which character has not been observed in any species hitherto described by any American author. These nodules are very conspicuous and much compressed laterally, so as to present very much the appearance of coarsely folded ribs, thus furnishing a close approximation to the original type from which Swainson formed the genus ; on this account it becomes exceedingly interesting, as indicating great variety in the specific forms of this genus, giving assurance that among the many varied forms yet to be discovered we may at last find the identical species sent by Rafinesque to Swainson. These compressed nodules will at once distinguish it from all other species.

Gyrotoma carinifera, Anthony.—Shell conic, thick, dark brown ; spire obtusely elevated, truncate, though not abruptly so, six whorls remain, one or two having apparently been lost by truncation ; carinations elevated, subacute and found on all the whorls, two on each of the spiral ones and three to four on the body whorl ; fissure direct, broad, and moderately deep, extending about 1-5th around the shell ; sutures irregular, much modified by the carinæ, and often concealed in part by them ; aperture ovate and banded within ; columella much rounded, callous at the lower part only ; outer lip irregularly waved, its outline modified by the carinæ on the body whorl. No sinus.

Length of shell 7/8 in. Breadth of shell 1/2 in. Length of aperture 5½-16 in' Breadth of aperture 1/4 in.

Hab.—Coosa River, Alabama. My Cabinet.

Obs.—This species cannot well be confounded with any other yet described. In general form and in its armature one is very forcibly reminded of *Melania annulifera*, Con., from which it differs, however, not only generically, but by its more ovate base; the carinæ are lighter in color than the general body of the shell, and are slightly irregular or sub-nodulous in outline; it is a stout, heavy species, and has a smaller aperture proportionally than is common in the genus; the bands within the aperture are five in number, very dark, and the three central ones are disposed to be confluent; a dark broad band revolves around the base of the shell. Compared with *Schizoztoma pagoda*, Lea, it differs in color, in its more elongate form, and by the character of its carinæ, which are more uniform, the main variation being that they are more diffused on the whorl, whereas, in Mr. Lea's species they are particularly conspicuous near the apex.

GYROTOMA ROBUSTA, Anthony.—Shell fusiform, robust, thick, of a dark olive color; spire obtuse, consisting of one perfect whorl remaining, with marks of two or three more, lost by truncation; body whorl broad, ornamented by three obscure, dark, wide bands; fissure rather broad, curved, not deep, closed behind by a cordlike cincture, very prominent, beneath which and close to it is a narrow depression or furrow; aperture narrow, ovate, banded inside; columella well rounded and covered by callus; lines of growth very distinct and much curved, rendering the shell rough by their prominence.

Length of shell 7/8 in. Breadth of shell 9-16. Length of aperture 10-16. Breadth of aperture 5-6.

Hab.—Coosa River, Alabama. My Cabinet.

Obs.—This is a large, robust species, somewhat resembling *Melania ampla*, nob. in form, and not unlike it in coloring; it is about the largest species I have seen in this genus, and certainly not the least beautiful; compared with *G. salebrosa*, nob., herein described, it is larger, smoother, more inflated, and has not the rib-like prominences so characteristic of that species; the lower part of the columella is somewhat flattened and thickened, and another thickening takes place at the aperture, leaving a thinner space between the two points.

ANCULOSA ORNATA, Anthony.—Shell conic, rather thick, smooth; spire elevated, composed of about five convex whorls; suture distinct; color dark yellow, polished, with dark brown bands revolving around the shell; three bands visible on the body whorl and only one upon the volutions of the spire; aperture ovate, livid and banded within; columella furnished with a callus, often tinted with rose color; sinus very small.

Hab.—North Carolina. My Cabinet; Cab. Hugh Cuming, London; A. N. S., Phila.; State Coll., Alb., N. Y.; Smithsonian Collection.

Obs.—A fine species, so much elevated as readily to be taken for a *Melania;* the dark bands on a yellow ground give it a lively appearance; about one hundred specimens are before me, and present very little variation; the dark bands within the aperture are very conspicuous, one being near the upper angle, two others near each other, but widely separated from the first, and a fourth near the base of the shell; the middle bands are often confluent, and all of them are arrested by a broad area before they reach the outer edge.

ANCULOSA LIGATA, Anthony.—Shell ovate, smooth, of a dark green color, rather thick; spire obtusely elevated, composed of about four whorls; suture very distinct; upper whorls flattened, body whorl constricted at the middle, banded; aperture ovate, banded within; columella deeply indented, callous; no sinus at base.

Hab.—Alabama. My Cabinet; Cab. Hugh Cuming; A. N. S., Philad.; State Coll., Albany, N. Y.; Smithsonian Collection.

Obs.—This species, of which I have some twenty or thirty individuals before me, seems remarkably constant in character for an *Anculosa*, and not readily mistaken for any other; its color, which is a dirty dark green, is but poorly relieved by the faint bands on the whorl; nevertheless, it is an interesting species, and one which will always attract attention; its most prominent character is the constriction on the body whorl, which gives the appearance of a cord having been drawn tightly around it while in a yielding state.

ANCULOSA CORPULENTA, Anthony.—Shell ovate or broad ovate, smooth, thick; spire rather elevated; composed of 4–6 subconvex whorls; suture decidedly impressed; aperture very broad, ovate, ample, banded inside; columella well rounded, slightly covered with white callus, and with a slight indication of sinus at base.

Hab.—North Carolina. My Cabinet; Cab. Hugh Cuming, London; A. N. S., Philada.; State Coll. Albany, N. Y.; Smithsonian Collec., Washington, D. C.

Obs.—Cannot well be confounded with any of its congeners; it is unusually elevated for an *Anculosa*, resembling more a *Paludina* in that respect; the whorls are regularly but not abruptly shouldered, and are often excavated with a narrow channel at the middle; striæ and even indistinct carinæ are often visible, but are not a constant character; the bands within the aperture are not always well defined and are sometimes wanting altogether; when present they are generally five in number, and are arrested by a narrow white space at the outer lip; body whorl often subangulated.

Occurs in Dan river, North Carolina, in company with *Anculosa canalifera*, nob., and appears to be very common. Several hundred specimens of various ages are now before me.

ANCULOSA CANALIFERA, Anthony.—Shell ovate, costate, of a brown color, thin; spire acutely elevated, composed of 5—6 sharply carinate whorls; suture not very distinct; aperture about half the length of the shell, ovate, banded inside; columella deeply indented; sinus none.

Hab.—North Carolina, in Dan river.

My Cabinet; Cab. Hugh Cuming, London; A. N. S., Phila.; State Coll., Albany, N. Y.; Smithsonian Coll., Washington, D. C.

Obs.—One of our most curious and beautiful species, which no one can easily mistake; the whole shell is crossed with sharp, elevated costæ running around the whorls and corresponding deep grooves between them; about five costæ on the body whorl; a less number on the spire volutions; these ribs appear as dark bands in the interior of the aperture, and there is a broad non-elevated band at the base of the shell; differs from *Anc. costata*, nob., by the size and prominence of its ribs and by its elevated spire.

ANCULOSA VIRIDULA, Anthony.—Shell ovate, of a uniform dark green color, rather thin; spire much elevated, composed of 4—5 convex whorls; sutures very distinct; aperture ovate, large, about half the length of the shell, livid inside; columella well rounded; has a broad but not well defined sinus.

Hab.—Tennessee. My Cabinet; Cab. Hugh Cuming, London; A. N. S., Philada.; Smithsonian Coll., Washington, D. C.

Obs.—In form and coloring this species resembles *Paludina decisa*, Say, when that is about half grown, and but for its operculum one would hardly deem it an *Anculosa;* it is a plain, unadorned species, not liable to be confounded with any other; its body whorl is large and subangulated; lines of growth well defined and close; it has a slight disposition to shouldering at the suture; it is not an abundant species so far as at present known.

ANCULOSA PATULA, Anthony.—Shell ovate, of an uniform dark horn color, rather thin; whorls 4—5, convex; sutures very distinct; aperture semicircular, within whitish; columella only slightly rounded, somewhat flattened by a callous deposit, more or less tinged with dirty red.

Hab.—Tennessee. My Cab.; Cab .Hugh Cuming, London; A. N. S., Philadelphia; State collection, Albany, N. Y.; Smithsonian collection.

Obs.—Resembles none other of the genus; its color, which is of a dull dark brown, and its semicircular mouth, remarkable for its length and breadth, are prominent marks of distinction; the body whorl is very much inflated and angulated or subangulated; the interior aperture is often blotched with irregular, dirty brown spots; spire elevated and acute, rapidly diminishing to the apex; the lines of growth are strong, and on some specimens a single prominent varix may be noticed.

ANCULOSA ELEGANS, Anthony.—Shell subglobose, smooth, thick; spire depressed, consisting of 3—4 flat whorls; color fine glossy dark yellow, ornamented with darker bands, of which five are on the body whorl; aperture obliquely ovate and banded within; columella deeply curved, with a heavy callous deposit; sinus very small.

Hab.—Alabama. My Cabinet.

Obs.—A highly ornamental species, which cannot be compared with any other; its bands on a yellow ground render it very lively; it is heavier and smoother than *A. ampla*, nobis, not so broad in the aperture and far more beautiful; neither is it so much shouldered as that species.

ANCULOSA ZEBRA, Anthony.—Shell subglobose, smooth, moderately thick; spire obtusely elevated, but slightly decorticated, and composed of four convex whorls; sutures distinctly impressed; aperture broad, ovate, within bluish, with the epidermal colors seen faintly through; columella rounded, covered with callus, which is thickened at the upper part.

Hab.—Alabama. My Cabinet.

Obs.—This species presents an appearance not often seen in the genus, by its mottled, variegated epidermis; the general ground color is gamboge yellow, but it is varied by blotches of very dark brown or reddish, often running into diagonal lines, which gives the shell a very lively and pleasant look. Only one other species is described as being similarly marked, viz., *A. flammata*, Lea; that species I have never seen, but the description does not warrant me in considering the two identical.

In old specimens the spire is often produced and somewhat nodulous, while the longitudinal bands become broken into irregular lines, so interrupted as to become scarcely more than quadrangular spots; it is one of our most beautiful species. About a dozen specimens are before me.

Io TURRITA, Anthony.—Shell conic, elevated, horn colored, spinous; spines rather short and heavy, about seven on each whorl; whorls nine; aperture pyriform, about one-third the length of the shell, and irregularly banded within; columella rounded, slightly twisted and forming a short, narrow canal at base.

Length of shell 2½ in. Breadth of shell ¾ in. Length of aperture ⅞ in. Breadth of aperture 7-16 inch.

Hab.—Tennessee.

Obs.—This is the most slender and elongate species of this genus which has come under my notice, and although a single specimen only has as yet been discovered, its claims to rank as a species will hardly be questioned; its long, slender form, stout, closely set spines, and small aperture will at once distinguish it from its congeners; two faint bands traverse each whorl, one of which lies precisely in the plane of the spines; lines of growth very distinct, nearly varicose.

Io BREVIS, Anthony.—Shell conic, ovate, horn colored, spinous; spines short, thick, five on each whorl; whorls about seven; aperture elliptical or pyriform, one-half the length of the shell; collumella rounded and sinuous near the base, forming with the outer lip a broad, well defined canal at the base.

Length of shell 2 in. Breadth of shell 1¼ in. Length of aperture 1 in. Breadth of aperture ¾ inch.

Hab.—Tennessee. My Cab.; Cab. Hugh Cuming, London; A. N. S., Philadelphia; State collection, Abany, N. Y.; Smithsonian collection, Washington, D. C.

Obs.—Another of the short, heavy forms in this genus, so unlike the normal type of *Io spinosa;* we think no one need confound it with any other species; its short, heavy, flattened spines jutting out like so many miniature spear heads and its peculiarly twisted columella will readily characterize it. The columella is also covered with a dense callous deposit, increased in thickness at its upper part, and often blotched with dark red at that point; irregular, ill defined, but broad bands are seen in the interior, often faintly visible on the epidermis. Appears to be a rather common species in some localities, of which I possess some hundreds of specimens.

Io inermis, Anthony.—Shell conical, smooth, thick; moderately elevated, composed of 7—8 flattened whorls; suture very distinct; upper whorls slightly coronated by an obscure row of low spines nearly concealed by the preceding whorl; shell otherwise perfectly smooth or only occasionally or obscurely nodulous on the body whorl; lines of growth very strong and much curved; aperture pyriform, curved to the left, banded within; columella twisted, callous, thickened above; sinus long and curved.

Length of shell 2 1-16 in. Breadth of shell 1 in. Length of aperture 1 inch. Breadth of aperture ½ inch.

Hab.—Tennessee. My Cab.; Cab. Hugh Cuming, London; A. N. S., Philadelphia; State collection, Albany, N. Y.; Smithsonian collec., Washington, D. C.

Obs.—Remarkable mainly for its plain, unadorned exterior and smooth epidermis; its color is also lighter than "spinosa" or "fluviatilis". No spines are visible on the body whorl of this species generally, but I have a few specimens which may perhaps belong to it, and which have a few obscure spines near the aperture; these are, however, little more than knobs. Some hundreds of this species have come under my notice.

Io spirostoma, Anthony.—Shell conical, broadly ovate, horn colored, spinous: spines short, thick, seven to eight on each whorl; whorls about nine; aperture ovate, about half the length of the shell; columella and outer lip much and regularly twisted, and forming a well defined sinus at base.

Length of shell 1¾ in. Breadth of shell 1¼ in. Length of aperture 15-16 in. Breadth of aperture ½ inch.

Hab.—Tennessee. My Cab. and Cab. Hugh Cuming, London.

Obs.—This is truly a most remarkable species of this highly interesting genus of Mollusks; its difference from the ordinary type of *Io spinosa* is too marked to admit of its being confounded with that, or indeed any other species; its stout, ovate form, short, heavy spines, and, above all, the peculiar and graceful curvature of its outer lip, are prominent characteristics and readily distinguish it. Among several thousand specimens of *Io* in my possession, but three adult individuals of this species have been noticed, although I have a dozen or more which seem to be immature forms of it; it may therefore be considered as not only one of the most aberrant and beautiful forms of *Io*, but also one of the rarest.

Paludina lima, Anthony.—Shell ovate, rather thin, dark green; spire obtusely elevated and composed of six convex whorls, which are strongly striate or subcarinate; sutures very distinct, and the upper part of each whorl being flattened renders it more conspicuous; aperture broad-ovate, about half the length of the shell, livid within; columella slightly rounded and callous deposit small; umbilicus none.

Length 1¼ inches. Breadth ¾ inch.

Hab.—South Carolina. My Cab.; Cab. H. Cuming, London; A. N. S., Philada.; Smithsonian collection, Washington, D. C.

Obs.—In general form not unlike our Western *P. integra*, Say, from which it differs, however, by its revolving, raised striæ and by its carina, which are also well developed; the lines of growth are very strong, and decussating with the stria give the surface a beautifully rough appearance, which suggests its specific name. It is really one of our handsomest species, and so unlike all others that no American species can readily be mistaken for it. In most specimens the body whorl is very strongly carinate about the middle, and the outer lip is considerably produced as in *P. subsolida*, nob.

PALUDINA DECAPITATA, Anthony.—Shell globular, thin, of a light green color; spire truncate, but never elevated under any circumstances, composed of about four very flat whorls; aperture broad, ovate, one-half the length of the shell, within dusky white; columella regularly but not deeply rounded, with a slight deposit of callous, and having a very small linear umbilicus at base.

Hab.—Tennessee. My Cabinet.

Obs.—A single specimen only is before me, and therefore I claim it as a new species with some hesitation; it seems to me, however, too unlike any of the ordinary forms in this genus to warrant its being included with any of them; it is the most globose of any species hitherto published, if we except the small, round forms which were long since removed, and very properly too, to *Amnicola*; the spire is entirely wanting, but traces of the sutures show the number of whorls; and its present appearance forbids the idea of its ever having had an elevated spire.

PALUDINA HUMEROSA, Anthony.—Shell ovate, thick, bright green, imperforate; spire rather obtusely elevated, composed of about 5—6 convex whorls; upper whorls smooth, body whorl and preceding one strongly striate and granulate or subgranulate; sutures very distinct; aperture ovate, nearly one-half the length of the shell, livid within.

Length about half an inch.

Hab.—Alabama. My Cabinet.

Obs.—A single specimen only is before me, but it is sufficiently distinct; its granulated surface and the broad shouldering of the whorls are its chief characteristics; compared with *P. genicula*, Con., it is more slender, darker in color, and its granulated surface is of itself a sufficient distinction.

PALUDINA EXILIS, Anthony.—Shell turrited, smooth, rather thick; color light apple green; spire elevated, composed of about seven volutions; suture well marked; aperture small, broad-ovate, livid within; body whorl distinctly angulated, subumbilicate, and with very distinct lines of growth; columella well rounded and curved with a callous deposit, connecting perfectly with the outer lip thus forming a continuous rim.

Length 1¼ inches. Breadth ¾ inch.

Hab.—Mississippi. My Cab.; Cab. H. Cuming, London; A. N. S., Philadelphia; State collection, Albany, N. Y.; Smithsonian collection.

Obs.—One of the most slender of our American species; *Paludina subsolida*, nob., is more ponderous, more globose, and has a larger aperture; no other species approaches it in general appearance; the whorls of this species taper more rapidly to an acute apex than in most of the species; compared with *P. integra*, Say, it is more slender, more solid, and the aperture is much smaller.

PALUDINA SUBSOLIDA, Anthony.—Shell ovate, imperforate, very thick; color light green, verging to brown in old specimens; spire much elevated, composed of 6—7 inflated whorls; sutures very distinct; aperture broad-ovate, about one-third of the length of the shell, within white; lip curved forward and forming a very conspicuous, subacute tip near its base; columella well rounded, a thick callous deposit covering the umbilicus.

Length 2 inches; breadth 1¼ inches.

Hab.—Illinois. My Cab.; Cab. Hugh Cuming, London.

Obs.—This is the most ponderous species in the genus, far exceeding *P. ponderosa*, Say, in that respect; compared with that species it is not only much more solid and heavy, but its spire is proportionally more elongate, whorls more convex, while the body whorl is less ventricose, and the aperture is uncommonly small for a *Paludina* of its size; the body whorl is disposed to be angulated near its middle; all the whorls are more or less shouldered and the lines of growth are very conspicuous; the body whorl is obscurely striate concentrically, and its surface thereby modified so as to present a faintly sculptured appearance, and the striæ being somewhat finely undulated the appearance under a microscope is very pleasing.

Supplement to "A Catalogue of the Venomous Serpents in the Museum of the Academy," etc.

BY E. D. COPE.

Species 19. Teleuraspis Castelnaui *Cope*. Another specimen, obtained in a collection made between Fort Riley and Pike's Peak, Kansas, with Sceloporus undulatus, Ablabes occipitalis, Bascanion flaviventris, etc. As the same collection, however, contained a specimen of Liophis reginæ, the occurrence of the South American serpent in question was doubtless the result of accident or mistake.

P. 345. After Elaps altirostris insert

64. E. Hemprichii *Jan*, Rev. et Mag. de Zoologie, 1858, p. 524.

One spec. Surinam. Dr. Colhoun.

Our specimen differs from those described by Prof. Jan with respect to the number of gastrosteges included in the black rings. In those the central ring covers but one plate; in ours, four, the lateral ones six or seven. The great breadth of these rings compared with the light spaces, distinguishes it at once from any other species which we have seen. The muzzle is short, and the nostrils widely separated. Total length 11 inches. Gastrosteges 181, anal 1, urosteges 27.

P. 346, species 51. A more careful examination of the two specimens here assigned, with a mark of doubt, to Elaps Marcgravii, has convinced us that neither of them belong to that species, and that they are in fact distinct from each other. The smaller we believe to be undescribed. After filiformis *Gthr.* it is the most slender South American Elaps. Upon comparing it with a young E. lemniscatus, which has a head of the same size, the proportions of the body and tail are nearly similar, but the number of sets of rings is rather less. The head is not so broad posteriorly, and the occipital plates are a little more elongate. The principal difference, however, lies in the distribution of colors on the head. This is entirely black above and below as far as three scales behind the occipitals, except a yellow band behind the postoculars. This covers the sixth upper labial, one temporal above it, anterior third of the occipitals, hinder edge of superciliaries, and greater part of the vertical. Superior labials seven, third and fourth coming into the orbit. Distance from the black of the head to first ring, eleven scales. Eight sets of rings, the middle not twice as wide as the external ring, which is as broad as the yellow interval. Gastrosteges 197; anal 1; urosteges 19 pair. Length 11 in. 9 l.

We propose calling this species Elaps melanogenys.

One specimen, presented by Dr. Wilson; locality unknown.

E. Gravenhorstii *Jan*, loc. cit. p. 524, resembles this species, but has a black half-collar only, and a longer tail. The preocular is very small, separated from the nasal by the contiguous post-frontal and superior labial. In our species the preocular is unusually large, and in contact with the nasal.

Species 53. The three specimens here referred to frontalis *D. & B.* belong to a species nearly allied to lemniscatus, apparently undescribed. The most prominent differences are, the exact equality of the black rings in width, the shorter intervals between the triads, and the position of the first ring which touches the occipital and last labial shields. In lemniscatus, its vars. frontalis and baliocoryphus, in Marcgravii and decoratus, the first black ring is several scales behind the angle of the mouth, the intermediate space being red; also the central ring of each three is wider than the external. Distance between the middle and outer of the three rings in our specimens of lemniscatus two and three scales; in isozonus (as we now call this serpent) four. In the former the anterior part of the occipitals is crossed by a black band; in the latter they are entirely white, (red?), except a little black at the posterior ends.

E. isozonus *nob.*—Sets of rings twelve. No. 1, gastrosteges 201; anal 1, entire; urosteges 28, first 9 entire. No. 2, 218; anal 1, divided; urosteges 26. No. 3, 213 gastrosteges; anal 1, divided; urosteges, 29, two entire. We do not know the part of South America inhabited by this serpent.

Species 54. The specimen here described as Elaps baliocoryphus is, as we now believe, a variety of the lemniscatus. It resembles the figure of the var. frontalis *D. & B.* ("Marcgravii" *Pr. Max.*) in Abbild. Naturgeschichte Brasiliens, differing in having an additional red (white) band across the fronts of the occipitals. Whether Marcgravii *D. & B.* be a variety of lemniscatus, as believed by Dr. Günther, or not, the latter is certainly liable to great variation in the distribution of colors on the head.

In place of E. baliocoryphus, insert

54. E. filiformis *Günther*, Proc. Z. S. 1859, p. 86.

The head of our specimen is so badly mutilated that the characters could not be made out without difficulty. We are, however, much gratified to be able to record our probable possession of the interesting species described as above. It may be known from other American Elapses by its excessively elongate form and the possession of but one postocular. In a few particulars it differs from Dr. Günther's description. The nasal plates are two: two temporals bound the upper border of the sixth labial shield, the anterior of which reaches the postocular. There is no light-colored band across the post-frontals. Triads of rings nineteen, disposed as in the description.

Preocular acute anteriorly, just touching the nasals; hence the post-frontals are bent down, and almost reach the labials. Third, fourth and fifth superior labials narrow and high, eye resting on the suture of the last two. Gastrosteges 308; anal 1, divided; urosteges 42. Length 21 in. 9 l.

One sp. ? Dr. Wilson.

To assist further in the identification of the species of Elaps having the rings arranged by threes, we have prepared the following table. Those marked with an asterisk are not in the Museum of the Academy.

A. Postoculars two.

Head compressed, lanceolate.

Labials not reaching the occipitals. ALTIROSTRIS Cope.

Head depressed.

Sixth superior labial reaching the occipital. *DECORATUS Jan.

Sixth superior labial not reaching the occipital.

† Posterior part of occipitals included in a black collar or half-collar.

a. Neck surrounded by a narrow yellow ring.

Cephalic plates black; an imperfect postocular cross-band. *ELEGANS Jan.
Red, bordered with black. SURINAMENSIS Cuv.
b. Neck covered by the black collar.
Post-frontals touching the labials. *GRAVENHORSTII Jan.
Post-frontals not touching the labials;
Geneial shields entirely black. MELANOGENYS Cope.
Red or yellow;
Scales between middle and outer black ring red. ISOZONUS Cope.
Black with large white spots. DISSOLEUCUS Cope.
†† Occipital shields not traversed by a black collar or half-collar.
a. Rings absent on the belly, divided and alternating above. ALTERNANS D. & B.
b. Rings entire;
The middle one of each three more than twice as wide as the outer. *DUMERILII Jan.
Not more than twice as wide as the outer,
But twice as wide as the red spaces between the triads. HEMPRICHII Jan.
Not twice as wide.
First black ring just touching occipitals ISOZONUS Cope.
Some distance behind them;
Before the eyes uniform black. *MARCGRAVII D. & B.
A red band. LEMNISCATUS Schn.
B. Postoculars one.
Body very slender. FILIFORMIS Gthr.

Species 57. Platurus fasciatus *Daud.*, add
One sp. Raiatea. Dr. J. Wilson, U. S. N.

Species 63. Pelamis bicolor *Daud.*, add
One sp. Pacific coast of Panama. Dr. J. Wilson, U. S. N.

We correct the following typographical errors in the Catalogue:—
Page 332, line 20, for "those" read these.
" 333, " 35: for "Proteroglyphis" read Proteroglyphes.
" 338, " 12: for "Dr. Coleman Pemberton" read Dr. J. P. Coleman.
" 338, " 19: for "plants" read flanks.
" 341, Pelias berus: for "var. niger *Bell*," read var. prester *Linn.*
" 342, line 11: for "BRACHYCHRANION," read BRACHYCRANION.
" 343, " 19: for "H. pallidiceps *Gray*" read H. pallidiceps, *Gthr.*
" 343, " 33: for "SEPEDON Cuvier" read SEPEDON Merrem.
" 344, Bungarus fasciatus: for "Three sp." read Five sp.
" 345, line 37: for "E. Bertholdi," read E. Bibroni.
" 347 " 5: for "Hydrophia," read Hydrophis.

Catalogue of Colubridæ in the Museum of the Academy of Natural Sciences of Pailadelphia. I. Calamarinæ.

BY E. D. COPE.

4. COLUBRIDÆ.

Essential char.—Superior maxillary bone horizontal, articulating with the anterior frontal by a lateral process; its anterior prolongation bearing teeth neither perforated nor channelled for the reception of a venom duct. The posterior prolongation uniting to the ectopterygoid by a horizontal, oblique articulation. Superior processes of the caudal vertebræ not elongated; hypapophyses bifid.

Char. not universal.—Top of head plated. Belly protected by broad plates. Tail cylindrical. Penis simple.*

The Chersydrus granulatus has a compressed tail somewhat resembling that of the sea snake's, and adapted to habits similar in many respects. Yet even in external form it bears a greater resemblance to that of some of the Boas, having a prehensile character. A comparison of the caudal vertebræ of this serpent and the Hydrophis pelamidoides shows the following differences: In the latter the neural spines are slender and greatly elongated, and the pleurapophyses† slender, elongated, and but little diverging. The "appendages" of the latter, which in all serpents appear in the last dorsal and first caudal vertebræ, and are doubtless the homologues of the re-verted processes on the ribs of birds, partake of the same nature. The hypapophyses are similar to those of the dorsal vertebræ, being undivided, with the exception of those upon the first two vertebræ, whose pleurapophyses are destitute of the appendage. These are slightly bifid.

In the Chersydrus the structure is entirely that of the Colubers. The neural spines are short and compressed; the pleurapophyses short and diverging; and the hypapophyses bifid, and their lateral moieties separated. Thus in addition the difference in the armature of the mouth, the structure of the tail separates this genus from the sea snakes. Its position appears to us to be between the Homalopsinæ and Boidæ,—connected to the latter by Xenodermus *Reinwt.*, as indicated by Dumeril and Bibron.

CALAMARINÆ.

Calamaria Boie. Type C. Linnaei.

Isis, 1827, p. 519.

65. C. Gervaisii *D. & B.*, vii. p. 63.

Four sp.	Philippine Is.	Mr. Cuming.
One (young).	"	"

Aspidura Wagler. Type A. brachyorrhos.

Naturlich. Syst. der Amphib. p. 191.

66. A. brachyorrhos, Gthr. Cat. Brit. Mus. 14. *Scytale brachyorrhos* Boie. Isis, 1827, 517. *A. scytale*, D. & B., vii. 178 ("Wagler" D. & B. et Gthr.).

One sp.	Ceylon.	Mr. Cuming.

67. A. trachyprocta *nobis.*

Form stout, not elongate. Tail short, thick, one-eighth of total length. Scales in fifteen rows, broad, not imbricate, smooth. The scales in the four or five rows each side of the anus, for a distance of from four or five scales in front to nine or ten behind the anus, are marked each with a small recurved tubercle near the anterior border. Anal shield entire. Superior labials six, last largest; the eye resting on the fourth. Inferior labials five. Posterior pair of geneial shields separated by a central complementary plate. Head shields similar to those of A. brachyorrhos, except that the occipitals are more rounded posteriorly, and the lower postoculars larger. Gastrosteges 135, 1 entire anal, 21 entire urosteges, and a small central postanal plate. Total length 8 in. 2 l. Tail 1 in.

Coloration.—Upper surface of head and body deep brown, becoming lighter on the third and fourth longitudinal rows of scales, and contracted on the tail to a narrow mediän vitta. A blackish brown band passing through the eye, and along the adjacent edges of the scales of the second and third rows, indistinct on the sides, but distinct on the tail. Superior labials and throat yellowish; belly grayish, largely varied with black, which forms an irregular longitudinal band.

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* Coronella cana is one exception, fide Schlegel.

† These were inadvertently alluded to, Proceedings, 1859, p. 333, as "hæmal spines."

This is a more robust serpent than the well-known brachyorrhos, and has a shorter and thicker tail. While this has 21 urosteges, our specimen of the other has 32. The latter has the scales in 17 rows (15 Günther), and they are more elongate and imbricate; it has not the supplementary geneial plate, and above all, the peculiar tuberculation of the ischiadic region. This exists elsewhere only—as far as we know—in the Trachischium rugosum *Gthr.*, of the Himmelayas, also a Calamarian, and is donbtless an assistance to the animals in burrowing in the earth, and among unyielding objects.

Another difference between this serpent and the brachyorrhos is seen in the less elongated form of the head of the former, the rather shorter labials, and much shorter geneials. The eye, too, is a trifle longer, and more anterior. The coloration is quite different; we only note here, the absence of the large neck spots in trachyprocta.

One sp.	Ceylon.	Mr. Cuming.

HALDEA Baird & Girard. Type H. striatula.

Catal. Rept. Smiths. Inst. Serp. p. 122, 1853. *Conocephalus* Dumeril. Prodrome de la Classification des Reptiles Ophidiens, pp. 43 et 46, 1852, and Günther Cat. Brit. Mus. p. 17. Not of Thunberg, 1812, (Orthoptera.)

68. H. striatula *B. & D.* *Conocephalus striatulus* D. & B., Erp. Gen. et Gthr. l. c.

Two sp.	S. Carolina.	Dr. Edwd. Hallowell.
One sp.	N. Carolina.	?
One sp.	Richmond, Va.	Smithsonian Inst.
One sp.	N. America.	?

TROPIDOCLONION nobis. Type T. lineatum.

Microps Hallowell Proc. Acad. Nat. Sci. viii. 1856. Not of Megerle, 1823, (Coleoptera Oedemeritæ.)

This genus is allied to Ischnognathus *D. & B.* Streptophorus and Elapoidis agree with it in having divided urosteges, carinate scales and two internasals, but differ thus, Streptophorus, two post-, no preocular; Elapoidis, one post-, two preoculars; Tropidoclonion, two post-, one preocular.

69. T. lineatum *nob.* *Microps lineatus* Hallow. l. c.

Two sp.	Kansas.	Dr. Hammond.

STREPTOPHORUS D. & B. Type S. Sebæ.

Erp. Gen. vii. 514.

70. S. Sebæ *D. & B.* *Elapoides fasciatus* Hallow. Journ. Acad. iii. 35, pl. 4.

One sp.	Honduras.	Dr. Woodhouse.
Two sp.	?	Gard. of Plants.

71. S. atratus *nobis.* *Coluber atratus* Hallow. Proc. Acad. Nat. Sci. ii. p. 245, 1845. *Streptophorus Drozii* D. & B. vii. 518, 1854, Günther l. c.

We are glad to be able to restore the name given by Dr. Hallowell to this species many years before that of the Erpetologie Generale. The specimen described by him is rather paler than the others—justifying the expression, "lead colored." The "six" superior labials is an anomaly, other specimens having seven. None of the specimens have the dark color on the chin and throat mentioned by Dumeril—but this is not probably an important character, as Günther does not allude to it.

Four sp.	Venezuela, within 200 miles of Caraccas.	Dr. Ashmead.

72. S. bifasciatus *D. & B.* vii. 520.—In this species the carinæ are very strong, and present on every row of scales. It is of a slender, elongate form as mentioned by its describers, resembling the species of Ablabes in its proportions. For this reason we question the propriety of removing this genus from the neighborhood of Ischnognathus, where Dumeril places it, and it is only the Calamarian form of S. atratus that induces us to consent to the position assigned by Günther. Our specimens of species being fresh, we will note: that the superior surface is not properly black, but deep slate; and that the collar and inferior labial plates are light yellow. The black upon the *gastrosteges* covers an extent rather wider than each white lateral band.

Three specimens,	Jalapa, Mexico,	Sr. Rapfhael M. De Oca.
One "	"	Mr. Pease.

TANTILLA Bd. & Grd. Type T. coronata.

Catalogue Serp., p. 131.

This genus appears to be quite distinct from Rhabdosoma *D. & B.*, being characterized by a more slender body, longer tail, divided anal, and a loreal plate, either united to the postfrontals or wanting. The latter two peculiarities also distinguish it from Rhabdion *D. & B.* Posterior maxillary teeth equal to the anterior, smooth. Perhaps Rhabdosoma elaps *Gthr.* l. c. 241, belongs here; its anal scute is, however, entire.

73. T. Hallowelli *nob.* *Tantilla gracilis* Hallow., Proc. Acad. Nat. Sci. viii. p. 246.

This species is accurately described as cited, and the differences between it and T. gracilis pointed out. These, we think, are of specific value, and accordingly name it after Dr. Hallowell, as a slight recognition of his many valuable contributions to herpetology.

The form of this species is more like that of Haldea striatula *B. & G.*, than Carphophiops amoena. The locality, "Indianola," assigned by Dr. Hallowell, is probably a mistake, being copied from Baird & Girard's Catalogue. We have one specimen brought from Kansas by Dr. Hammond.

74. T. reticulata *nob.*—Vertical plate broad, slightly angular in front, projecting posteriorly for half its length between the occipitals. Occipitals and both pair of frontals rather broad. Rostral broad, visible from above. Nostril in the posterior part of prenasal; postnasal in contact with first and second superior labials, preocular, post- and prefrontals. Two postoculars, upper one in contact posteriorly with the occipital, the lower touching one temporal. A second temporal equal to the first, and a third very small one behind it. Superior labials, seven last largest, third and fourth entering the orbit both low. Four geneials, anterior in contact with inferior rostral. Scales in fifteen rows, last one slightly larger. Gastrosteges 148, postabdominal 1 divided, urosteges 67 pair. Total length 10 in. 3 l.; tail 3 in.

Color above chestnut brown, much darker posteriorly, extending upon the tips of the gastrosteges. Anteriorly the scales are edged with darker, presenting a reticulated appearance. Central dorsal row of scales lighter, forming a pale vitta, disappearing on the tail. Third and fourth rows on each side also lighter, forming indistinct bands. A collar of the same pale yellow brown crosses the ends of the occipitals. Cephalic plates clouded and edged with darker; a deep brown mark extending from the occipitals to the mouth across the yellowish labials. Beneath pale yellow, deepening posteriorly.

One specimen,	Cocuyas de Veraguas, New Grenada,	R. W. Mitchell.

This species seems to be much like the T. coronatum *B. & G.*, but has a much longer tail, and broader head-shields; the upper post-ocular, not the lower, is in contact with the temporal in the latter. See Pacif. R. R. Report, x. Reptiles, pl. 38, fig. 96.

Rhabdosoma D. & B. Type R. semidoliatum.

Erpet. Gen. vii. 90.

75. R. semidoliatum *D. & B.*

Two specimens,	Mexico,	?
Six "	Jalapa, Mexico,	Sr. R. M. De Oca.
One " (young)	" "	Mr. Pease.

This species appears to be very common in central Mexico. The spaces between the black spots on the dorsal region, described by authors as white, are in life of a beautiful vermillion color.

76. R. fuliginosum *nobis.* *Coluber fuliginosus* Hallowell, Proc. Acad. Nat. Sci. ii. p. 243, 1845. ? *Isoscelis et Rhabdosoma maculatum* Günther, Cat. Brit. Mus. 204, 241, 1858.

Six superior maxillary teeth on each side in a continuous series, the anterior longer than the posterior, but not longer than the middle two. Seven inferior maxillaries on each side regularly increasing in length anteriorly. This peculiar dentition induced us to consider this serpent a Lycodont, but subsequent examination and comparison with Dr. Günther's description of his Rhabdosoma maculatum has persuaded us that the two species are very similar, possibly identical. The most material difference is, that the maculatum has seven superior labial plates, the fuliginosum six. Of those of the latter, the third is elongated, and with the fourth entering the orbit. Geneials one pair; vertical broader in front than its greatest length. Postoculars two, temporals three; loreal long and narrow. Color reddish brown, a darker shade crossing each occipital obliquely and uniting behind them into a dorsal band, which is soon broken into spots. These are obsolete on the middle and hinder part of the body. No lateral series of spots. Belly immaculate. See Hallowell l. c.

One specimen, Near Caraccas, Dr. S. A. Ashmead.

77. R. torquatum *D. & B.* vii. p. 101. "*Brachyorrhos torquatus* H. Boie, Erpét. de Java."

Superior labials eight, fourth and fifth coming into the orbit. One postocular; one pair of geneials. The color of our specimen is a very deep brown, so dark that the transverse series of black spots can only be seen in certain lights. The opalescent play of colors is unusually beautiful on this account. Beneath dark brown, posteriorly finely punctulated with darker.

One specimen, Surinam, Dr. Hering.

78. R. crassicaudatum *D. & B.* vii. 103.

Seventeen longitudinal rows of scales; two postoculars; seven superior labials, third and fourth entering the orbit. In these important particulars our specimen is similar to those of Dumeril, but the coloration is totally distinct. Though much bleached by the alcohol, the animal was, probably, pale brown, each scale tipped with darker, with a dorsal vitta of the same extending from the occipitals to the end of the tail. Beneath yellow, immaculate.

One specimen, Surinam, Dr. Hering.

Carphophiops Gervais. Type C. amoena.

Dict. Nat. Hist. Univers. (dir. par M. C. D'Orbigny,) iii. p. 191, 1843. *Carphophis* Dumeril, Prodrome de la class. des Rept. Ophidiens, pp. 43 et 46, 1852. Erp. Gen. vii. p. 131, 1854. Günther l. c. 17, 1858. Not of Gervais l. c. 191, 1843. *Celuta* B. & G., Cat. Serp. 129, 1853.

This genus is characterized by Gervais as cited, who refers to Dumeril and Bibron; but we cannot find it published by the latter prior to 1852. Carphophis *Gerv.* has the characters of Calamaria *Boie*, and hence cannot be applied to the Coluber amoenus Say.

79. C. amoena *nobis*. *Coluber amaenus* Say, Jour. Acad. Nat. Sci. iv. 237. *Calamaria amoena* Schl. Ess. Phys. Serp. 31. *Brachyorrhos amoenus* Holbr. Am. Herp. iii. 115. *Carphophiops vermiformis* Gervais, Dict. Univ. d'Hist. Nat. iii. 191. *Carphophis amoena* Dum. & Bibr. vii. 131. *Celuta amoena* B. & G. l. c. 129.

Four specimens,	Pennsylvania,	?
Two "	"	Drs. Holbrook and Hallowell.
" "	Beesley's Point, N. J.,	Mr. Samuel Ashmead.
One "	Cape May Co., N. J.,	Mr. Tiffany.
" "	Virginia,	Jno. Cassin, Esq.
Two "	S. Carolina,	Smithsonian Institution.
One " (young)		Dr. Harlan.

VIRGINIA Bd. & Grd. Type V. Valeriae.

Catal. Rept. p. 127.

This genus is characterized by the elongated form of the shields of the head, and the distinctness of the latter from the body. There are two small nasal plates, as in Rhabdosoma.

80. V. Valeriae Bd. & Grd. l. c.

One specimen,	?	?

HOMALOSOMA Wagl. Type H. lutrix.

Nat. Syst. Amph. 190, 1830.

81. H. lutrix *D. & B.* vii. p. 110.

Two specimens,	Cape of Good Hope,	Garden of Plants.

OLIGODON Boie. Type O. subquadratum.

Isis 1827, p. 519.

82. O. sublineatum *D.* & *B.* vii. p. 57.

One specimen,	Ceylon,	Mr. Cuming.

Genera 11. Species 18. Specimens 54.

The stoutness of the body and tail, and the shortness of the latter, the indistinctness of the head, and the general firmness and rigidity, are characters by which the greater number of the species of this sub-family may at once be recognized. But as in some genera, certain of these peculiarities vanish, thus approximating them to other groups, we have followed M. Dumeril in employing the dentition, which is here quite characteristic. Elsewhere, however, it evidently fails to characterize natural groups, as urged by Dr. Günther in his invaluable catalogue of the Colubrine snakes in the British Museum. We have, therefore, omitted the genera Rhinostoma, Phimophis * and Homalocranion, which have the posterior superior maxillaries grooved, and are perhaps more nearly allied to Scytale. A single specimen of Scytale coronatum, of a variety near that called S. Neuwiedii in the Erpetologie Generale was described by us, Proc. of this Acad., 1859, p. 294, as Olisthenes euphaeus. Our conviction of its generic distinctness was grounded upon the peculiar form of the rostral plate, which while offering strong characters among some serpents, here varies with the individual.

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* Phimophis Guerini, the only species. It is Rhinosimus Guerini of Dumeril and Bibron, but the generic name was applied to certain species of Curculionidæ, by Latreille, more than fifty years previously.

Descriptions of new species of Cyrena and Corbicula in the Cabinet of the Academy of Natural Sciences of Philadelphia.

BY TEMPLE PRIME.

1. Cyrena ponderosa *Prime*. C. testa subtrigona, inaequilaterali, transversim irregulariter striata, epidermide brunnea vestita, valvis crassis, solidis; intus candidissima; umbonibus parvis, obliquis, erosis; dentibus cardinalibus tribus; dente laterali postico compresso, antico breviore, acuto.

Shell somewhat triangular, inequilateral, lines of growth irregular, epidermis brown, valves heavy; interior white; umbones small oblique, eroded; three cardinal teeth; posterior lateral tooth compressed, anterior one short and prominent.

Long. 1 4-5; lat. 1 3-5; diam. 1 2-5 poll.

Hab.—Philippine Islands.

This shell is remarkable by its weight in proportion to its size. It may be compared to the Cyrena Bengalensis *Lamarck*, from which it differs, however, in being heavier, having less prominent beaks, and by being slightly more inflated; its epidermis is darker and more heavily sulcated.

2. Cyrena Corbiculaeformis *Prime*. C. testa trigona, sub-inflata, inaequilaterali, intus violacea, epidermide brunnea vestita, umbonibus tumidis; dentibus cardinalibus tribus, inaequalibus; lateralibus praelongis.

Shell triangular, somewhat inflated, inequilateral, beaks prominent, posterior margin angular, three cardinal teeth, the two posterior ones of nearly the same size, anterior one less developed; lateral teeth elongated, not prominent; interior of the valves bluish-white; epidermis glassy, lines dark brown.

Long. 1 3-10; lat. 1 2-10; diam. 0 7-10 poll.

Hab.—Cochin in Malabar.

This species is different from any Cyrena known to me, but bears much resemblance in its general form to certain species of Corbicula.

3. Corbicula rotunda *Prime*. C. testa parva, orbiculata, subaequilaterali, tumidula, subtrigona, solidiuscula, epidermide flavescente vestita; regulariter striata; umbonibus tumidis; intus alba; dentibus cardinalibus inaequalibus; lateralibus elongatis, angustis, subaequalibus, arcuatis, tenuissime striatis.

Shell small, somewhat inflated, nearly equilateral, interior white, epidermis yellow, lines of growth delicate and very regular; umbones prominent; cardinal teeth unequal in size; lateral teeth elongated, carved, finely denticulated.

Long. 0 7-10; lat. 0 6-10; diam. 0 6-10; poll.

Hab.—Surinam River, Guyana.

Compared to the Corbicula Paranensis *Adams*, this species differs in being more inflated, in having larger beaks and by its more regular lines of growth, which give it somewhat the appearance of an Eastern species.

The Humming Birds of Mexico.

BY RAFAEL MONTES DE OCA.

Of Jalapa, Mexico.

No. 2.

CYANOMYIA CYANOCEPHALA Gould.
Ornismyia cyanocephala Lesson.
Trochilus quadricolor Vieillot?
The Black billed Azure-crown, Gould, Monograph, part xi.

This Humming Bird is commonly known by the name of *Chupa-mirto*, *comun de pecho blanco*, or common white-breasted Myrtle-sucker. It is found very abundantly, and at all seasons of the year, in the vicinity of Jalapa, Coatepec, Orizaba, and many other places in Mexico; but Mr. Gould, in his Monograph of Humming Birds, states, that it is also found in Guatemala, and seems disposed to assign that country as its proper locality. It is quite possible it nests there also, but the fact that it remains in Mexico all the year round, and as I have often found its nest in the months of April and May, I believe it is most properly to be considered a bird of the country last mentioned.

This pretty little bird is very familiar and unsuspicious, and allows a person to approach it very near in the woods, and is a constant visitor to the gardens in the towns and cities. Like the fine species mentioned in my first paper, it frequents the *Mazapan* flowers, around which it may be seen at all hours of the day.

The nest of this species is lined on the inside with the *tule* silky floss, which is the case with nearly all the Humming Birds in this part of Mexico. On the outside it is covered with moss from the rocks, in such handsome and ingenious manner that would be very difficult for man to imitate. There are generally two eggs, but on one occasion I found three in one nest. The eggs are white, oblong, rather elongated, and large in proportion to the size of the bird.

The upper part of the head in this species is of a most brilliant metallic azure color, the upper parts of the body and wing coverts are brown, shaded with bronze green; the tail and its coverts are of the same, but not so bright; the wings are as long as the tail, and of an umber purplish color, the throat is satin-like white, with the sides of a bluish green, or rather feathers of both colors mixed together, very lustrous; the under part of the body and the feathers of the leg are dull white; the under surface of the wings is bronzed brownish gray; the under tail coverts are of the same, but less brilliant, and with the edges of each feather lighter, the feet, nails and upper mandible are black, the mandible is about one third black at its point, and flesh color at its base.

Total length, 4¼ inches, wing 2¼, tail 1¼, bill ¾ inches. The female is of the same size as the male, and the only difference between the two sexes is that the blue of the head and the white of the breast are of not so decided colors in the female, although this difference only occurs at certain seasons of the year. The cranium of the male can be distinguished also from that of the female, being rather larger.

The Committee to which was referred a communication from Mr. P. B. Du Chaillu, asserting that the Academy is his debtor for a part of the costs of a certain exploration in Africa made by him, reported in substance that Mr. Du Chaillu has no claim whatever on this institution.

Dr. Carson said:

Mr. President,—I rise to perform the painful duty of announcing the death of our associate, Dr. Edward Hallowell, which took place on the 21st instant, from consumption; and I feel that in connection with this announcement, it is especially proper from me should come the remarks which will serve to do honor to his memory as a member of the Academy of Natural Sciences. He was not only an intimate friend, but one of long standing, having almost uniformly been educated together, at first in the Collegiate Department of the University of Pennsylvania, then as students of Medicine in the office of the late Dr. Hewson, and in the Medical Department of the University.

In early life Dr. Hallowell was remarkable for his studious habits, and proficiency in the branches of his Collegiate Course. He always had a prominent position, and graduated with the highest honors of his class. To the Science of Medicine, which he subsequently pursued with ardor, and in which for many years he labored zealously as a practitioner, he made important contributions, in the department of pathology. His paper upon the subject of Cholera Infantum is an admirable and original addition to the knowledge of that disease, by which medical literature was enriched, and American medical authorship advanced in estimation abroad. It is looked upon as authoritative, with respect to the true pathology of the affection.

As a member of the Academy he labored industriously, and from the time of his election was devoted to the interests of the Institution. His department was that of Herpetology, and I may appeal to the collection for proof of his usefulness, and to the publications for evidences of his ability to place before the public the large amount of new information derived from the materials at his command. When a few years ago he was stricken down by disease, his loss as a working member of the Academy was severely felt and lamented.

As an associate Dr. Hallowell was a favorite of his fellow members. His manners were always urbane and deferential to the views and feelings of others, his temper was uniformly equable and not readily ruffled ; the kindness of his heart was a perennial spring, while his sense of justice led him to acknowledge the merits and the services of all who, like himself, were engaged in scientific occupations.

We have lost in him a worthy and beloved associate, and most sincerely deplore his too early death, although to him it is a gain.

The following resolutions were then offered by Dr. Le Conte and adopted:

Resolved, That the Academy has learned with sincere regret the death of its late member, DR. EDWARD HALLOWELL.

Resolved, That in Dr. Hallowell the Academy has lost one of its most enthusiastic and laborious students and valued associates ; one who has endeared himself to his fellow members, as well by his high personal qualities as by his steadfast and successful pursuit of science.

March 6th.

Vice President BRIDGES in the Chair.

Forty members present.

Dr. Joseph Wilson (Surgeon U. S. Navy) related that he had in his possession, during some months, on board of the U. S. ship Vandalia, a female whelp of a small Ocelot, (*Felis pardalis minimus*,) commonly called "tiger-cat." It was obtained in Realejo, Nicaragua, in the month of December, 1858. At that time it was too young to eat anything except milk, but gradually came to eat crumbs of bread from her cup, and small scraps of meat. The animal was light gray, beautifully marked with dark elliptical rings and spots, light underneath ; ears quite short, rounded, with a lunated white spot on top ; the tail about the length of the body and nearly black. She was of the size of an ordinary cat, and weighed five pounds eight ounces when ten months old. She was transferred to the Doctor's protection in March 1859, when her age was conjectured to be four months. She was named Miss Tiger by acclamation, and became reconciled to her change of abode much more readily than I was prepared to expect. The Vandalia was miserably infested by rats, and in the course of a few hours she received her first lesson in the valuable accomplishment of catching them. A young rat was caught in a trap and presented to her attention ; she hesitated but a moment, when she commenced struggling to get at it, and when permitted she pounced upon it with great fierceness ; she walked about growling with her prize, evidently proud of the conquest. She afterwards played with it for about three hours, performing many fantastic tricks in the way of tossing it up and catching it as it came